

# **EMERGENCY ACTION PLAN SUMMARY FORMAT AND WAIMANALO RESERVOIR EAP EXAMPLE**

May 16, 2006

Please find the following a summary guideline for writing an Emergency Action Plan (EAP) for Dams and Reservoirs and a sample of the Waimanalo 60 MG Reservoir EAP.

The summary is from the Federal Guidelines for Dam Safety – Emergency Action Planning for Dam Owners (April 2004) which can also be found at <http://www.fema.gov/plan/prevent/damfailure/publications>

Please note:

- 1) Include the State Dam ID number on the EAP cover sheet.
- 2) Each page of the EAP should include the State Dam ID and print date.
- 3) The current DLNR contact information is as follows:

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## **Emergency Action Plan (EAP) Summary**

Title Page/Cover sheet

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## Summary of description items for Emergency Action Plan for Dams and Reservoirs

I. Notification Flowchart	<p>A notification flowchart clearly summarizes the following information and is applicable to each of the emergency classification levels considered.</p> <ol style="list-style-type: none"> <li>1. Who is responsible for notifying each dam owner representative(s) and/or emergency management official(s);</li> <li>2. What is the prioritized order in which individuals are to be notified;</li> <li>3. Who is to be notified.</li> </ol> <p>The flowchart should include individual names and position titles, office, home and cell telephone numbers, and alternate contacts. The flowchart should also indicate whom each responsible person is to call and the order, i.e. 1, 2, 3, in which the calls should be made.</p> <p>The notification list should consider the following individuals and organizations.</p> <ol style="list-style-type: none"> <li>1. Dam Owner;</li> <li>2. Local emergency management officials;</li> <li>3. Appropriate State and Federal emergency management agencies;</li> <li>4. Residents and property owners located immediately downstream of the dam within the boundary of the potential inundation where available warning time is limited;</li> <li>5. Operators of other dams or water-retention facilities;</li> <li>6. Managers and operators of recreation facilities;</li> <li>7. National Weather Service;</li> <li>8. News Media;</li> <li>9. Others, as appropriate.</li> </ol> <p>The flowchart should be easy to follow for each emergency classification level. Color-coding is recommended to trace the proper sequence for the various emergency classification levels. If needed, narrative information supplementing the flowchart may be helpful.</p>
II. Statement of Purpose	Following the flowchart, briefly state the purpose and scope of the EAP.
III. Project Description	Provide a description of the project and its location. Include a project vicinity map and a simple drawing showing project features. List any significant upstream or downstream dams, and list downstream communities potentially affected by a dam failure or flooding as a result of a large operational release.
IV. Emergency Detection, Evaluation and Classification	<p>The EAP should include a discussion of procedures for timely and reliable detection, evaluation and classification of an existing or potential emergency condition. The conditions, events, or measures for DETECTION of an existing or potential emergency should be listed. Procedures, aids, instruction, and provisions for EVALUATION of information and data to assess the severity and magnitude should be discussed.</p> <p>Various emergency CLASSIFICATIONS should be identified and described so that all in the organization will accept and understand what each classification means when notifications are issued. For example – two dam failure emergency classifications and one non-failure emergency classification are as follows:</p> <ol style="list-style-type: none"> <li>1. Failure is imminent or has occurred (Condition A): This description should indicate that “time has run out” where there is already a failure, a failure is occurring or a failure is about to occur. Once a dam owner determines that there is no time to take corrective measures to prevent failure, the “failure” is imminent or has occurred” warning should be issued.</li> <li>2. Potential failure situation is developing (Condition B): This situation should convey the impression that “some amount of time” is still available for further analyses/decisions to be made before dam failure is consider to happen. The time to failure could be hours, days, to weeks and those factors should be considered in alerting authorities.</li> <li>3. Non-failure emergency condition: This situation should be used when there is</li> </ol>

	no danger of dam failure, but flow conditions are such that flooding is expected to occur downstream of the dam. Non-failure conditions are more common than failure conditions, and activation of the EAP will provide an early warning to downstream areas during flood conditions or large spillway releases. The dam owner can provide an important public service by notifying agencies of the expected release of waters below the dam.
V. General Responsibilities Under the Plan	The plan should specify the person(s) or organization responsible for the maintenance and operation of the dam and the persons or groups responsible for implementing various phases of the EAP. Some of the responsibilities are described below.
a. Dam Owner Responsibilities	The duties of the dam owner or owner's designated representatives under the EAP should be clearly described. The operators should be informed of their importance and duties under the EAP and information should be provided for them to communicate what is needed to the appropriate parties. Specific actions operators are to take after implementing the EAP notification procedures should be described, e.g. opening the spillway gates, opening and closing of the water intakes. The chain of command should be described, and responsibilities should be coordinated at the appropriate management level.
b. Responsibility for Notification	The person(s) authorized to notify state and local officials should be determined and clearly identified in the EAP. Dam owners should have dam specific information available for government officials and for the media in anticipation that information needs to be disseminated.
c. Responsibility for Evacuation	Warning and evacuation planning are the responsibilities of local authorities that have the statutory obligation. Dam owners are responsible for informing the appropriate parties and should not assume or usurp the responsibility of the government agencies. There are situations where there are close downstream neighbors and the dam owner should arrange to notify those persons directly if necessary. If a close neighbor condition occurs, the notification should be coordinated with appropriate public officials.
d. Responsibility for Duration, Security, Termination and Follow up	A person should be designated for on-site monitoring of the situation at the dam and keeping local authorities informed on the emergency conditions. Provisions for security at the dam during the emergency should be specified. A person should be responsible for declaring the emergency is terminated and applicable government officials responsible for termination should be identified. Additionally a follow up after the emergency by all participants should be specified.
e. EAP Coordinator Responsibility	The dam owner should specify in the EAP the designated EAP coordinator who will be responsible for EAP related activities.
VI. Preparedness	Preparedness actions are taken to prevent a dam failure incident or to help reduce the effects of a dam failure or operational spillway release and facilitate response to emergencies. The EAP should describe the preparedness actions taken both before and following the development of the emergency conditions. Timely implementation of the EAP and coordination and communication with downstream local authorities are crucial elements to the effectiveness of emergency response to the incident. Several types of preparedness actions that should be taken are: <ol style="list-style-type: none"> <li>1. Surveillance: The EAP should contain a discussion of provisions for surveillance, detection and evaluation of an emergency situation and should clearly indicate that the EAP can be implemented in a timely manner.</li> <li>2. Response During Periods of Darkness: Discussion in the EAP of the response to potential or actual emergency conditions during periods of darkness should be addressed. The EAP should also address power failures concerns.</li> <li>3. Access to Site: The description of access to the site should focus on primary and secondary routes and means for reaching the site under various conditions. Travel time should also be included and means for reaching the site should be described, e.g. foot, boat, air.</li> <li>4. Response During Weekends and Holidays: Discussion of emergency response</li> </ol>

	<p>during weekends and holidays should be addressed.</p> <ol style="list-style-type: none"> <li>5. Response During Periods of Adverse Weather: Discussion of emergency response under adverse weather conditions should be included.</li> <li>6. Alternative Systems of Communication: The description of the availability and use of alternative communications systems at the site should be included.</li> <li>7. Emergency Supplies and Information: Emergency supplies and information to their access should be included. Some items may be stockpiled, while other may need to be acquired, and information on each should be included in the EAP. Also alternate power sources should be included if needed to operate the spillway gate or other needs. <ol style="list-style-type: none"> <li>a. Stockpiling Materials and Equipment – provide detailed information on material, equipment, operator or contractor and others needed.</li> <li>b. Coordination of Information – describe the coordination, names, numbers and how coordination is to be handled.</li> <li>c. Other Site-Specific Actions – describe other site-specific actions devised to moderate or alleviate the extent of possible emergencies.</li> </ol> </li> </ol>
VII. Inundation Maps	Inundation maps are necessary and should be developed by the dam owner in coordination with the appropriate state and local emergency management agencies and included in the EAP.
VIII. Appendices	<p>Following the main body of the EAP, an appendix section should be included that supports and supplements the basic EAP. Some information to be included are:</p> <ol style="list-style-type: none"> <li>1. Investigation and Analyses of Dam Break Floods – the EAP appendix should identify and briefly describe the method and assumptions selected to identify the potentially inundated areas.</li> <li>2. Plans for Training, Exercising, Updating, and Posting the EAP – plans should be developed for the annual training of project operators and other responsible personnel for conducting periodic EAP exercises, for ensuring timely update of the EAP and for posting the notification flowchart.</li> <li>3. Site-Specific Concerns – each dam and downstream area is unique and therefore each EAP is unique. This section should include a discussion of site-specific concerns that will provide valuable information affecting the EAP. A detailed information description on the reservoir is helpful as are as-built plans and other plan, profile, and cross section sheets.</li> <li>4. Approval of the EAP – the EAP should include a section that is signed by all parties involved in the plan, where they indicate their approval of the plan and agree to their responsibilities for its execution. Inclusion of signatures will assure that all parties are aware and understand the EAP and agree to their assigned role should an emergency occur.</li> </ol>